Exercise walk-through

Aquaculture ▪ 5.16

eXercise

You must be able to

- describe **aquaculture** 水产养殖 and its benefits
- explain its environmental impacts (waste, disease, escapees)
- weigh it against wild-caught fishing

Method — What aquaculture is

Aquaculture is farming aquatic organisms (fish, shrimp, shellfish). It can take pressure off **wild** stocks and provide protein efficiently.

Method — Benefits

- Relieves **overfishing** of wild populations.
- High yield of protein in a small area.

Method — Impacts

- **Waste and excess feed** pollute nearby water (nutrients → eutrophication).
- **Disease and parasites** spread in crowded pens and can infect wild fish.
- **Escapees** can become invasive or interbreed with wild fish.
- Coastal habitat (mangroves) may be cleared for ponds.

Method — A worked judgement

A shrimp farm built by clearing mangroves relieves wild fishing pressure but destroys valuable coastal habitat and pollutes local water — a trade-off.

Practice 2.1 ▪ 1 mark

What is aquaculture?

Solution 2.1

Worked steps

Farming aquatic organisms (fish, shellfish) B1.

Practice 2.2 ▪ 1 mark

State one benefit of aquaculture.

Solution 2.2

Worked steps

Any one: relieves overfishing, high protein yield **B1**.

Practice 2.3 ▪ 1 mark

State one environmental impact of aquaculture.

Solution 2.3

Worked steps

Any one: waste pollution, disease spread, escapees, habitat loss B1.

Exam-style 3.1 ▪ 1 mark

One environmental problem with fish farming is

A it eliminates all pollution

B waste and disease can affect nearby waters

C it increases wild fish stocks directly

D it uses no feed

Solution 3.1

Method: What aquaculture is

A it eliminates all pollution

B waste and disease can affect nearby waters ✓

C it increases wild fish stocks directly

D it uses no feed

Worked steps

B — waste and disease can affect nearby waters.

Exam-style 3.2 ▪ 2 marks

A coastal region builds fish farms.
(a) Explain one benefit and one drawback.
(b) Explain how escaped farmed fish could harm wild populations.

Solution 3.2

Method: Impacts

Worked steps

(a) Benefit: relieves pressure on wild stocks / efficient protein; drawback: waste pollution, disease, or habitat loss B1 B1. (b) Escapees can spread disease, compete with, or interbreed with wild fish, weakening wild populations M1 A1.

Exam-style 3.3 ▪ 2 marks

Explain why crowding in fish pens increases disease risk.

Solution 3.3

Method: Impacts

Worked steps

Crowding lets pathogens and parasites spread quickly between the closely packed fish, so disease outbreaks are more likely M1 A1.